

**Notice of Allowability**

Application No.

10/541,088

Examiner

Jerry Martin Blevins

Applicant(s)

ARAKIDA ET AL.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to appeal brief filed December 18, 2006.
2. ☒ The allowed claim(s) is/are 1,2,4,5 and 7.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

In claim 4, specifically in both lines 4 and 7, delete the word "a" occurring between the words "and" and "light" and insert the word -- said -- in its place.

In claim 7, specifically in line 10, delete the word "of" occurring between the words "portion" and "adjacent".

### ***Response to Arguments***

Applicant's arguments, see pages 5-10, filed December 18, 2006, with respect to claims 1, 2, 4, 5, and 7 have been fully considered and are persuasive. The rejection of claims 1, 2, 4, 5, and 7 has been withdrawn.

Specifically, examiner concurs with applicants that the applied prior art reference to Yasuda et al, US 2002/0154879, fails to teach a second waveguide branching off from a first waveguide so as to make an acute angle. Although Yasuda teaches an acute angle between waveguides, as in Figure 4, neither waveguide branches off from the other. In fact, Yasuda teaches that these waveguides are on distinct planes

Art Unit: 2883

separated by a layer (layer 23), as shown in Figure 4. Therefore, although one waveguide (waveguide 28) tapers such that the end nearest the other waveguide (waveguide 26) is smaller than its other end, as most readily seen in Figure 10, neither end of the waveguide (28) is coupled to the other waveguide (26). Therefore, the combination of applied prior art reference US 6,157,760 to Fujita et al. and Yasuda fail to teach or make obvious a second waveguide branching off from a first waveguide so as to make an acute angle, wherein the end of the second waveguide which couples to the first waveguide is smaller than its other end.

***Allowable Subject Matter***

Claims 1, 2, 4, 5, and 7 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art, as best exemplified by Fujita, teaches an optical waveguide (Figure 1) comprising a first waveguide (3) having a common transmitting and receiving port (11) at one side and a receiving port (6) at the other side, extending linearly, and able to guide an optical signal in bi-direction (bi-directional arrows of Figure 1 and column 5, lines 56-59), and a second waveguide (4) branching off from the first waveguide so as to make an acute angle with the receiving port, coupling the first waveguide at one side, having a transmitting port (7) at the other side, and guiding an optical signal to the first waveguide (column 7, lines 37-48). However, Fujita does not teach that the second waveguide is formed with a dimension such that the one side which is coupled to the first waveguide is smaller than the other side. As stated above,

Art Unit: 2883

in the response to arguments section, Yasuda fails to teach a second waveguide branching off from a first waveguide, but instead teaches two waveguides positioned in distinct planes and separated from each other by a layer. Therefore, even though Yasuda teaches a second (sending) waveguide (Figure 4, element 28) situated relative to a first (receiving) waveguide (26) at an acute angle and tapered such that the side coupled to the first waveguide is smaller than the side coupled to the transmitter (pages 5 and 6, paragraph 89), Yasuda fails to teach the claim limitation that a side of a second waveguide coupled to a first waveguide is smaller than its other side, since the waveguides of Yasuda are not coupled. Furthermore, Fujita, taken alone or in combination with the prior art, fails to disclose or render obvious a second waveguide formed with a dimension such that the one side which is coupled to a first waveguide is smaller than its other side.

Claim 2 depends from claim 1.

Regarding claim 4, the prior art, as best exemplified by Fujita, teaches an optical transmitting and receiving module (Figure 1, element 1) coupled with an optical fiber (2), a light emitting element (7) and a light receiving element (6) via an optical waveguide comprising a first waveguide (3) coupling the optical fiber at one side and the light receiving element at the other side and extending linearly, and a second waveguide (4) branching off from the first waveguide so as to make an acute angle with the other side of the first waveguide and coupling the first waveguide at the one side and the light emitting element at the other side. However, Fujita does not teach that the second waveguide is formed with a dimension of the one side which is coupled to the first

Art Unit: 2883

waveguide so as to make the one side smaller than the other side. As stated above, in the response to arguments section, Yasuda fails to teach a second waveguide branching off from a first waveguide, but instead teaches two waveguides positioned in distinct planes and separated from each other by a layer. Therefore, even though Yasuda teaches a second (sending) waveguide (Figure 4, element 28) situated relative to a first (receiving) waveguide (26) at an acute angle and tapered such that the side coupled to the first waveguide is smaller than the side coupled to the transmitter (pages 5 and 6, paragraph 89), Yasuda fails to teach the claim limitation that a side of a second waveguide coupled to a first waveguide is smaller than its other side, since the waveguides of Yasuda are not coupled. Furthermore, Fujita, taken alone or in combination with the prior art, fails to disclose or render obvious a second waveguide formed with a dimension such that the one side which is coupled to a first waveguide is smaller than its other side.

Claim 5 depends from claim 4.

Regarding claim 7, the prior art, as best exemplified by Fujita, teaches an optical waveguide (Figure 1) comprising a first waveguide (3) having a common transmitting and receiving port (11) at one side and a receiving port (6) at the other side, extending linearly, and able to guide an optical signal in bi-direction (bi-directional arrows of Figure 1 and column 5, lines 56-59), and a second waveguide (4) branching off from the first waveguide so as to make an acute angle with the receiving port, coupling the first waveguide at one side, having a transmitting port (7) at the other side, and guiding an optical signal to the first waveguide (column 7, lines 37-48). However, Fujita does not

Art Unit: 2883

teach that the second waveguide is formed with a dimension of the one side which is coupled to the first waveguide so as to make the one side smaller than the other side or that the second waveguide is curved at a portion adjacent the first waveguide. As stated above, in the response to arguments section, Yasuda fails to teach a second waveguide branching off from a first waveguide, but instead teaches two waveguides positioned in distinct planes and separated from each other by a layer. Therefore, even though Yasuda teaches a second (sending) waveguide (Figure 4, element 28) situated relative to a first (receiving) waveguide (26) at an acute angle and tapered such that the side coupled to the first waveguide is smaller than the side coupled to the transmitter (pages 5 and 6, paragraph 89), and that the second waveguide is curved at a portion nearest the first waveguide (page 9, paragraph 128), Yasuda fails to teach the claim limitation that a side of a second waveguide coupled to a first waveguide is smaller than its other side and that the second waveguide is curved at a portion adjacent the first waveguide, since the waveguides of Yasuda are not coupled and are not adjacent one another. Furthermore, Fujita, taken alone or in combination with the prior art, fails to disclose or render obvious a second waveguide formed with a dimension such that the one side which is coupled to a first waveguide is smaller than its other side and curved at a portion adjacent the first waveguide.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 5,463,705 to Clauberg et al. teaches the claimed acute angle branching waveguides, as shown in Figures 3, 4, and 7. However, Clauberg does not teach the branching waveguide is tapered or curved in the manner specified by the present claimed invention.

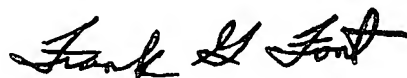
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jerry Martin Blevins whose telephone number is 571-272-8581. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMB



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2000